MULTIMEDIA UNIVERSITY

STUDENT IDENTIFICATION NO

MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 1, 2015/2016

BDS2014 – DATABASE AND SYSTEMS ANALYSIS

(All Sections / Groups)

10 OCTOBER 2015
09:00am-11:00am
(2 Hours)

INSTRUCTIONS TO STUDENT

1. This Question paper consists of 4 pages with 5 Questions only.
2. Attempt **FOUR** out of **FIVE** questions. All questions carry equal marks and the distribution of the marks for each question is given.
3. Please write all your answers in the Answer Booklet provided.

QUESTION 1

a) Briefly describe the **FIVE (5)** main parts of a database system. (5 marks)

b) Sakura Sushi is a Japanese restaurant that wishes to install a system to track orders. When a regular client calls to place an order for sushi, the restaurant owner will ask for his phone number. When the number is entered into the system, the details of the client and the date he last placed an order will be retrieved from the client database and presented on the screen.

When taking the client's order, the restaurant owner will refer to the product file to obtain the product information. Once the order is confirmed, the total cost, including tax and delivery charge, is computed. A receipt is then printed. The client's sales information is then stored into the client sales history file. When making deliveries, the deliveryman will give the client a copy of the receipt. Monthly totals are maintained and submitted to the management in order to facilitate analysis of business performance. Monthly sales can be obtained from the client sales history file.

Based on the scenario provided, complete the following tasks using the Yourdon notation:

i) Develop a logical context data flow diagram (DFD) for the scenario. (6 marks)

ii) Derive a logical level-0 data flow diagram for ALL the processes mentioned in the scenario. This level-0 derivation must be consistent with the context diagram developed in part b(i). All diagrams must be clearly labelled and notated.
(14 marks)

(Total: 25 marks)

Continued...

QUESTION 2

a) The following is a user view of a donor's donations report for Bakti Center:

BAKTI CENTER
Donations Report

Donor ID: M1010
Donor Name: Mary Chua
IC No.: 720717-04-2468
Contact: 014-611 3579
Address: 55-A, Taman Bunga Raya, Bukit Beruang, 75450 Melaka

Date: 06 SEP 2015

No.	Donation ID	Donation Description	Donation Date	Value Worth	Remarks
1	D11	Food	19/06/15	RM 550	Milo and Milk Powder
2	D22	Monetary	25/07/15	RM 480	-
3	D33	Clothing	14/08/15	RM 100	For 8-12 years old

Derive the above relations in unnormalized form (UNF), and normalize it from UNF to third normal form (3NF). Show all steps taken to normalize the relations and clearly state any assumptions made (if necessary). (7 marks)

b) Based on the set of 3NF relations derived in (a), draw a complete ER diagram. Make sure that all the entities, attributes, relationships and cardinalities/connectivities are included in your ER diagram. (6 Marks)

c) Software testing is one of the most important activities in the implementation phase of the system development life cycle (SDLC). Discuss **FOUR (4)** different types of testing that are performed during software testing. (12 marks)

(Total: 25 marks)

Continued...

QUESTION 3

a) Calculate the payback period for a project that costs approximately RM320,000 with a forecasted annual return of RM45,000. A corporate tax of 14% is levied per annum. Does the corporate tax rate affect the payback period? Justify with appropriate evidence. All formulae and workings must be clearly shown. (9 marks)

b) One of the current trends in system development is the Agile software development. This methodology provides innovative insights into best practices in system development and is becoming influential.

i) Differentiate between a methodology and a technique. (4 marks)

ii) Briefly explain any **SIX (6)** principles of Agile methodology in system development. (12 marks)

(Total: 25 marks)

QUESTION 4

a) Discuss the **SIX (6)** activities of systems analysis. (12 marks)

b) Describe **FOUR (4)** design considerations when deriving a logical data flow diagram of a new system from the existing system. (4 marks)

c) List any **NINE (9)** elements of good website design practice. (9 marks)

(Total: 25 marks)

Continued...

QUESTION 5

a) Discuss with examples the **THREE (3)** skills/knowledge that are required for a system analyst. (9 marks)

b) Based on the following table structure, write appropriate SQL statements to carry out the following tasks:

STUDENT Table

Field Name	Data Type	Size	Remarks
STUDENT_ID	Number	-	Primary key
STUDENT_NAME	Short Text	40	Required
SUBJECT_ID	Short Text	8	-
MARKS	Number	-	-

i) Create the STUDENT table based on the table structure given above. (6 marks)

ii) Change the size of the STUDENT_NAME field from the present 40 characters to 50 characters. (2 marks)

iii) Display those students' names that are NOT taking BDS2014. (2 marks)

iv) Display the average marks for each subject. (2 marks)

v) List STUDENT_NAME, SUBJECT_ID and MARKS for all students taking BDS2014 whose marks are at least 70 and above. Sort the output so that those with the highest marks are listed first. (4 marks)

(Total: 25 marks)

End of Page